



United States
Department of
Agriculture

Forest
Service

Southwestern
Region

517 Gold Avenue SW.
Albuquerque, NM 87102

Reply to: 3420

Date: October 6, 1987

Subject: Sandia Ski Area Stand Diagnoses

To: Forest Supervisor, Cibola National Forest

Since 1985, persons from the Cibola National Forest (CMF), the Sandia Ranger District (RD), and Forest Pest Management (FPM) have been working towards development of a vegetative management plan for the Sandia Ski Area (see our 3420 letters dated May 28 and May 31, 1985). This plan would be incorporated into the Master Development Plan and is needed to provide the permittee and the Forest Service with management alternatives and recommendations for the short- and long-term management of the vegetative component within the area. The purpose of this letter is to inform you of the status of this endeavor and to recommend the next course of action.

Thus far, management objectives have been determined, stand examinations conducted, and stand diagnoses written for those stands within, and adjacent to, the Sandia Ski Area (Compartment 5027). Stand objectives, listed below, were developed from project objectives described in a 3420 letter to you dated February 4, 1987.

Stand Objectives

1. Reduce the incidence and/or risk of potentially damaging pests including dwarf mistletoe (DM), western spruce budworm (WSB), Armillaria root disease, and aspen cankers.
2. Convert to, or retain, aspen where possible.
3. Retain or convert to spruce/fir on the upper slopes.
4. Retain or convert to a tree species mixture on mid and lower slope stands, featuring ponderosa pine and Douglas-fir.
5. Maintain a diversity of hardwoods in the understory.
6. Maintain or enhance vertical diversity.
7. Maintain or enhance horizontal diversity.
8. Create edges to favor bird populations which are important regulators of western spruce budworm.

*mailed via DG
on 10/7/87*





Using these stand, objectives and stand examination data collected during the summer and fall of 1986, FPM Pathologist, Helen Maffei, and Entomologist, Dayle Bennett, wrote a diagnosis for each stand. These diagnoses, along with the stand examination data printouts, were sent to CNF Silviculturist, Susan Grey, in June, 1987.

Following is a summary of the stand diagnoses, grouped by preferred treatment alternatives. Table 1 summarizes stand conditions and treatment by stand.

DEFER: Stands 2, 27, 31, 34, 35, 36, 43, 121, 123, and 171. These stands represent a wide variety of conditions and objectives. Cover types include spruce/fir, white fir, Douglas-fir, and ponderosa pine. Incidence and risk of potentially damaging pests is low and priority for treatment is low. Objectives generally include retaining the present cover type, maintaining diversity of hardwoods in the understory, and maintaining vertical and horizontal diversity. Since these stands are generally healthy, represent a diversity of stand conditions, and have a low priority for treatment, deferred treatment is recommended and best meets the individual stand objectives.

GROUP SELECTION: Stands 3, 20, 22, and 24. Stands within this treatment group also represent a wide range of stand conditions. The type and incidence of disease is variable and includes both root disease and broom rust in true firs, and several kinds of aspen cankers. However, these stands are generally in good health and warrant only low to moderate treatment priority. The primary stand objective is retention of, or conversion to, aspen. Group selection will result in small patches of aspen regeneration within these stands. This will help to meet other stand objectives by increasing species diversity, horizontal and vertical diversity, and reduction in the incidence of root disease and broom rust in spruce and true firs.

SINGLE TREE SELECTION: Stands 4, 21, 23, and 25. Each of these stands has a spruce/fir cover type. Each has a component of old, decadent, heavily diseased aspen. Many of these are dead or dying, and creating considerable risk to recreationists, particularly along the edges of ski runs and heavily used hiking trails. Primary objectives within these stands include reduction in incidence and/or risk of potentially damaging pests, retention of, or conversion to, spruce/fir as the cover type, and maintenance or enhancement of horizontal and vertical diversity. Single tree selection will initiate regeneration, and improve the health and vigor of the stands by reducing competition from over stocking and discriminating against true firs infested with broom rust. Aspen will eventually die out of the stands. Hazardous trees should be detected and removed annually. Treatment priority for each stand is moderate.

CLEARCUT: Stands 6, 10, 17, and 29. Stands 6, 17, and 29 have high incidence of aspen diseases and root diseases in true firs. Stand 6 also has DM in Douglas-fir and a moderate risk to WSB. Objectives for these stands include reduction in incidence and risk of potentially damaging pests; conversion to, or retention of aspen; maintaining a diversity of hardwoods in the understory; and enhancing vertical and horizontal diversity. Clearcutting will result in natural aspen regeneration, lower pest incidence and risk, and increased diversity.





Stand 10 is a white fir stand with a moderate risk to WSB and a significant amount of broom rust in white fir. Primary stand objectives include reduction in incidence and/or risk of potentially damaging pests, and conversion to ponderosa pine and Douglas-fir. Other objectives include maintaining a diversity of hardwoods in the understory, enhancing horizontal diversity, and creating edges to favor bird populations. Clearcutting, followed by planting of ponderosa pine and Douglas-fir, will meet these objectives.

Due to the incidence and potential risk of pests within these stands, treatment priority is high. To defer treatment of these stands will perpetuate these unhealthy conditions, resulting in hazard trees and increased risk to unsightly defoliation by WSB.

FINAL REMOVAL: Stands 7 and 8. These stands are predominantly white fir and Douglas-fir, with lesser amounts of aspen, corkbark fir, and Engelmann spruce. Root disease and broom rust are causing significant damage in true firs. Dwarf mistletoe is present in Douglas-fir and Stand 8 has a moderate risk to WSB. Each stand is overstocked but has a manageable understory. A final removal, followed by precommercial thinning will reduce competition, increase vigor, reduce pest incidence and risk, and increase diversity. Douglas-fir should be favored over Engelmann spruce and corkbark fir during precommercial thinning and subsequent entries.

SEED CUT: Stand 33. This is a white fir stand currently sustaining high levels of defoliation due to WSB and high levels of root disease. Western spruce budworm risk is moderate to high, indicating WSB will continue to be a significant pest. Treatment priority is high.

Objectives are to reduce incidence and risk of root disease and WSB, feature ponderosa pine and Douglas-fir, and enhance horizontal and vertical diversity. These objectives can best be achieved by a seed cut, utilizing existing ponderosa pine and Douglas-fir as seed trees.

COMMERCIAL THINNING: Stands 12, 26, 32, 37, and 42. Each of these stands is classified as white fir cover type. Pest incidence and risk vary between stands, as do treatment priorities. Objectives include reduction of pest incidence and risk; retention of, or conversion to, ponderosa pine and Douglas-fir; maintaining a diversity of hardwoods in the understory; maintaining or enhancing vertical and horizontal diversity; and creating edges to favor bird populations. Thinning these stands will reduce basal area and competition, thus increasing stand vigor. Pest incidence and risk will be reduced by discriminating against broom rust-infected white fir and DM-infected Douglas-fir during thinning. Western spruce budworm risk will be reduced by reducing stand basal area, discriminating against white fir and moving toward a more even-aged stand condition. Vertical and horizontal diversity, as well as edge effect in relation to adjacent stands, will be enhanced.

SANITATION CUT: Stands 19 and 28. Stand 19 is a decadent aspen stand containing many old, diseased aspen and several broom rust-infected true firs, all of which are hazardous to skiers on adjacent ski runs. These hazard trees should be identified and removed through a sanitation cut. Treatment priority is high.





Forest Supervisor, Cibola National Forest

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Stand 28 is an adequately stocked white fir stand. Many of the white fir have fir broom rust bole cankers, which weaken the trees and may result in extensive breakage followed by an increase in root disease and bark beetle activity. These infected trees should be removed through a sanitation cut. Treatment priority is moderate.

Now that the stand examinations and diagnoses have been completed, it is apparent to us that many stands within, and adjacent to the Sandia Ski Area are in need of treatment. Much of the area consists of stands which are overstocked, decadent, and heavily damaged by a wide variety of pests. If left untreated, these stands will continue to decline in health and vigor, resulting in increased damages and mortality due to pest activity, increased numbers of hazard trees, decreased species diversity, decreased vertical and horizontal diversity, decreased edges, and decreased visual quality. Therefore, we recommend an Interdisciplinary Team be convened to develop a vegetative management plan for the Sandia Ski Area. FPM personnel will be available to assist you.

Concurrent with any technical analysis, a public information and participation effort may be worthwhile. Some of the suggested treatments probably will be controversial, and we will need to convince concerned individuals of the necessity of doing these vegetative manipulations. Please contact me if you want us to provide assistance in developing a citizen participation program.

Douglas L. Parker

DOUGLAS L. PARKER

Director of Forest Pest Management

Enclosure

Concurrence: RM

Paul D. Weingart, Director



Table 1.—Summary of stand conditions and preferred treatment alternatives, Sandia Ski Area, Cibola National Forest, 1987.

Stand No.	Forest Cover Type	Stand Objectives [^]	DMR Rating ^{^^}	WSB Risk ^{^*}	Significant Aspen Disease	Significant Root Disease	Significant Broom Rust	Preferred Treatment	Treatment Priority [*]
2	spruce/fir	2,6,7,8	0	low	yes	no	yes	defer	low
3	spruce/fir	2,6,7	0	low	no	no	yes	gr. sel.	low
4	spruce/fir	1,3,6,7	0	low	yes	no	yes	s.t. sel.	moderate
6	white fir	1,2,5	1	moderate	yes	yes	yes	clearcut	high
7	white fir	1,3,6,7	1	low	no	yes	yes	final rem.	high
8	Douglas-fir	1,4	1	moderate	yes	yes	yes	final rem.	high
10	white fir	1,4,5,7,8	0	moderate	no	no	yes	clearcut	high
12	white fir	1,4,5,6,7,8	0	low	no	no	yes	comm. thin	low
17	aspen	1,2,6,7	0	low	yes	yes	no	clearcut	high
171**	Douglas-fir?	4,6	0	low	no	no	no	defer	low
19	aspen	1,2,6,7	0	low	yes	yes	no	sanitation	high
20	white fir	1,2,7	0	low	no	no	yes	gr. sel.	low
21	spruce/fir	1,3,7	0	low	yes	no	no	s.t. sel.	moderate
121**	spruce/fir?	3,7	0	low	no	no	no	defer	low
22	spruce/fir	2,3,6,7	0	low	no	no	no	gr. sel.	moderate
23	spruce/fir	1,3,6	0	low	yes	no	no	s.t. sel.	moderate
123	white fir	1,4	1	moderate	yes	no	yes	defer	low
"	aspen	1,2,6	0	low	yes	no	no	gr. sel.	low
"	Douglas-fir	1,3	0	low	yes	no	no	s.t. sel.	moderate
"	white fir	1,4	2	moderate	no	no	no	comm. thin	high
27	white fir	4,5,6,7	0	low	no	yes	no	defer	low
28	white fir	4,5,6,7,8	1	low	no	yes	yes	sanitation	moderate
29	white fir	1,2	0	low	yes	yes	no	clearcut	high
31	Douglas-fir	4,6,7	0	low	no	no	no	defer	low
32	white fir	1,5,8	0	moderate	no	yes	yes	comm. thin	moderate
33	white fir	1,4,6,7	0	moderate	no	yes	no	seed cut	high
34	white fir	5,6,7,8	0	low	no	no	yes	defer	low
35	ponderosa pine	4,5	0	low	no	no	no	defer	low
36	white fir	4,5	0	low	no	no	no	defer	low
37	white fir	1,4,5,6,7,8	0	moderate	no	yes	yes	comm. thin	high
39	white fir	1,4,5,6,7	0	low	no	no	yes	comm. thin	moderate
42	white fir	1,4,5,6,7,8	0	moderate	no	yes	no	comm. thin	high
43	white fir	1,4,5,6,7,8	0	low	no	no	yes	defer	low
125**	white fir?	1,4,6,7	0	moderate	yes	no	no	final rem.	moderate

[^] Stand objective codes correspond to those discussed within the context of this letter.

^{^^} Dwarf mistletoe risk rating...ranges from 0 to 9 and indicates the severity and extent of infection.

^{^*} Western spruce budworm risk...ranges from low to high and is based on a combination of stand conditions.

^{*} Treatment priority is based on existing stand conditions, the occurrence and risk of potentially damaging pests, and stand objectives.

^{**} These are new stands resulting from a change in stand boundaries following extensive reconnaissance...data for these stands may be inadequate.